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ABSTRACT

Panel studies have frequently been used by mass communication researchers. While these studies allow researchers to draw inferences about mass communication effects over time, they also tend to sensitize respondents to the issue under study. A study was undertaken to investigate panel effects by examining the survey interview as a medium of communication. Unlike other models of survey research that have conceptualized the interview as an "upward flow" of communication, the study used an approach that investigated the flow of information from interviewer to respondent to other members of the social network in a "downward" two-step flow. Subjects were 81 college students, 53 of whom lived in the same dormitory. Of these, 27 were involved in the survey panel and were interviewed twice, the interviews separated by a two-week interval. The remaining 26 dorm students were interviewed only at the second interview period, as were 28 students who did not live in the dorm. The findings indicated that significant knowledge gain and diffusion effects can occur in and thus contaminate panel studies. (Author/FL)

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Communication in Surveys:

Examining Cognitive Effects in Survey Research

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Abstract

Panel studies have frequently been used in mass communication research. While these studies allow researchers to draw inferences about mass communication effects over time, they also tend to sensitize respondents to the issue under study.

This paper investigates panel effects by examining the survey interview as a medium of communication. Unlike other models of survey research which have conceptualized the interview as an "upward flow" of communication, the present approach investigates the flow of information from interviewer to respondent to other members of the social network in a "downward" two-step flow.

The findings demonstrate that significant knowledge gain and diffusion effects can occur in and contaminate panel studies.

Communication in Surveys:
Examining Cognitive Effects in Survey Research

As Peter Miller and Charles Cannell (1973) have observed, the method of survey research and the substantive interest of communication have long enjoyed a symbiotic relationship. Many advances in one area have simultaneously led to advances in the other. Further, Miller and Cannell note, the survey itself provides an interesting focus for inquiry in communication (see also Atkin & Chaffee, 1970).

Traditionally, survey research has been viewed as a one-way form of communication from consumer to producer, from constituent to elected official in an "upward flow" (Davidson, 1972). Yet, in interviewing a respondent, an interviewer also imparts information in a "downward" flow. This information is contained in filter questions, explanatory material or options in closed-ended questions. From such material, a respondent might be presented with an issue he or she had never encountered before, or given options he or she had never considered before.

This flow of information is a particularly important consideration to communication researchers using panel studies. Panel studies were originally designed for studies of mass communication processes (Lazarsfeld, Berelson & Gaudet, 1944; Berelson, Lazarsfeld & McPhee, 1954) and have been increasingly used since the 1950's to measure longer-term mass communication effects. The problem of communication flow in panel studies is that the Time 1 interview can sensitize respondents to a particular issue, thereby affecting Time 2 measurements (Chaffee & McLeod, 1968). Studies

investigating panel effects are of increasing importance as some social scientists (e.g., O'Neill, 1979) advocate greater use of contextual information in questionnaires. Their argument is that by providing more background information on an issue in the interview questions, respondents will be more likely to supply a valid response because they will be aware of the ramifications of the issue. While such an approach may lead to greater validity, it also increases the threat of issue sensitization by providing more information to the respondent in the course of the interview.

Time 1 effects of panel studies on behavior are well-documented (Clausen, 1968; Kraut & McConahay, 1973). Summarizing these studies, people who have been interviewed in pre-election surveys tend to vote in greater proportion than those persons not interviewed. Somehow, although the actual mechanism is unclear, the survey interview prompts respondents to vote in elections.

A study on the effects of surveys on attitudes has also been conducted (Bridge, et. al., 1977). Here the researchers found that interviewing may change a person's attitudes if the person sees himself as not having sufficient information about the topic or if the person has an ambiguous opinion about the topic and if the topic is seen as important.

Bridge, et. al., ascribed this interview effect to two factors: (1) the respondent's desire to maximize self-esteem and (2) the respondent's desire to seem competent. Thus, if a respondent felt that he or she had done poorly or seemed incompetent in answering survey questions, he or she "might become more sensitive to pertinent information which can be used to form opinions that could be expressed in future interview-like situations" (p 62).

This paper investigates cognitive effects of survey research by considering the survey interview as a medium of communication. The search for cognitive effects is consistent with current trends in communication research which are based on the notion that what people learn from communicative activity is a more rewarding topic for media effects research than attitudinal or behavioral variables (Clarke & Kline, 1974).

In light of previous findings and the above discussion, the following hypotheses were developed for testing:

1. People can gain information about an issue as a result of being sensitized by the survey interview.

2. Information obtained in a survey diffuses to those not interviewed but living in close propinquity to those interviewed.

The first hypothesis addresses the issue of explicit information dissemination via the medium of survey research. To what extent do respondents learn about an issue as a result of being asked about the issue? By (1) providing information in filter questions and explanatory material at Time 1 and (2) testing for knowledge in the second wave of the panel, it is possible to assess the extent of respondents' learning from an interview.

The second hypothesis deals with a topic which has been or interest to communication researchers for decades: the diffusion of information from a source throughout a social system (e.g., Katz and Lazarsfeld, 1955; Deutschmann and Danielson, 1960; Greenberg, 1964; Rogers & Shoemaker, 1971; Chaffee, 1975). Considering the survey interview as a medium of communication, it is likely that there is a "two-step flow" of information from interviewer to respondent to

other members of the social network. As the survey interview is often an unusual event for most persons, it will likely become the topic of conversation with others, and these conversations will permit further dissemination of the information contained in the survey instrument.

Methodology

The Sample

To test these hypotheses, a small-scale field experiment was designed to simulate an attitude survey in a small, homogeneous, social system. In this field experiment, roughly half of the inhabitants were interviewed initially, and everyone was interviewed two weeks later. In selecting the social system for the study it was important to find a setting which was both conducive to interpersonal communication and one in which a survey would be highly visible.

After much deliberation, a college dormitory at a small, private, religious Minnesota college was selected for the study site. Although in the past, studies of college students have been criticized for their lack of external validity, it is important to note that findings of this study are not to be generalized from students to general members of the public, but from one social system to another. In this particular case, the social system is characterized by close linkages among and homogeneity of its residents: subjects lived in the same housing unit, were all virtually the same age, of the same religion, and were, in general, quite similar.

Eighty-one students were divided into three groups for this

study. Fifty-three of these students lived in one dorm (the experimental social setting) while the other 28 lived in the control dorm on a different part of campus. Of the 53 students in the experimental condition, 27 were involved in the panel and were interviewed at Time 1 and Time 2, while 26 students were interviewed only at Time 2.

In the first wave of the panel, which also constituted the treatment, personal interviews were conducted in the experimental dorm on randomly selected floors with one respondent in each room. All subjects could not be randomly assigned, however, since when only one person was in the room at the time of the interview, that student was implicitly self-selected. When there were two or more students in a room, one was randomly selected and the other(s) asked to leave for the duration of the interview.

In this initial treatment-interview, respondents were asked questions about nuclear waste disposal in a format similar to typical attitude surveys, and were not told that a follow-up interview would be conducted. The topic of the survey was selected because it was generally seen as important but ambiguous, conditions which, according to Bridge, et. al., might have some impact on respondents' orientation towards the topic.

The Time 1 Questionnaire

Three series of questions were constructed in which a filter question first asked respondents whether or not they were familiar with a topic, then supplied contextual information about that topic in the subsequent question. These three tandems, placed in different parts of the questionnaire, were designed to (1) create an

information need for respondents who, by the findings of previous studies, wish to seem competent and maximize self-esteem during an interview, and (2) meet that information need by supplying information in the follow-up question:

I a. Have you heard or read about any plans to store or dispose of nuclear waste? (if YES, which ones?)

b. I'm going to read you a list of some of the ways that have been suggested for storing nuclear waste. For each one, please tell me on a scale of one to five ... what you think of the following ways of storing nuclear waste:

storing it under the Antarctic ice cap
burying it underground or in a salt mine
storing it under the sea
rocketing it into outerspace

II a. The state of Minnesota is being considered as a prime storage area for the nation's future nuclear wastes. Have you heard anything about this possibility? (if YES what have you heard?)

b. The Lake Superior region, including northern Minnesota, Wisconsin, and part of Michigan, is seen as one of the prime disposal areas for nuclear waste because of the layers of granite there. Granite will absorb the waste. On a scale of one to five, are you in favor of or opposed to this idea?

III a. Do you know whether there are any nuclear power plants in Minnesota? (if YES, how many?)

b. The three nuclear power plants that operate now in Minnesota ....

Because respondents want to seem competent in answering questions on topics which are perceived as important, the first question of each tandem should arouse an information need in

respondents, particularly if they feel they have done poorly in answering the question. Thus, respondents should be sensitized to the second question, which meets their information-need. In employing these tandems, it was possible to both assess initial information levels in the filter question and disseminate information in the next.

The Time 2 Interview

Two weeks later, the second wave of interviews took place. At this time, students in the original treatment-interview group (E_1) were re-interviewed, while students not interviewed the first time but living on the same floor (E_2) and students in a separate control dorm (C) were interviewed for the first time. Students in this control group were virtually identical in terms of age, sex and academic major to those in E_1; students in the E_2 group differed demographically, probably because of the self-selection problem mentioned earlier. Questions in this wave of interviews were designed only to test for knowledge on the topic of nuclear waste disposal, not to simultaneously test for and disseminate information.

An index was constructed to measure knowledge at Time 2. In this index, respondents were given one point if they could accurately explain why Minnesota had been selected as a potential waste disposal site. They were also given points (from 1 to 4) for correctly naming methods of nuclear waste disposal. Finally, respondents were given two points if they knew exactly how many nuclear power plants there were in Minnesota or one point if they could approximate reasonably. This resulted in a total possible

score of seven.

Results and Discussion

Knowledge gain

By constructing the knowledge index, it was possible to measure the extent to which respondents learned about nuclear waste disposal as a consequence of being interviewed. Table 1 indicates that the subjects in E_1, those who received the treatment-interview, knew significantly more about the issue on the subsequent "test" than did subjects in the control dorm. The average score for E_1 group members on this test was 3.48 as opposed to 1.21 for control group members. Since the initial knowledge levels of both groups were virtually identical (1.22 for E_1 and 1.21 for C), and since all knowledge tested for was supplied in the treatment-interview, this comparison provides strong evidence for a cognitive component of interview effect and the first hypothesis.

Diffusion

Since the treatment-interview was conducted using about half of the students on a floor, diffusion of information about the treatment-interview could be measured by interviewing the remaining students on the second wave of interviewing. Because of the inability to completely use random assignment, this latter group, E_2, was different from either E_1 or C in that it had fewer social and natural science majors, but more business majors. This might have affected some of the comparisons, since business majors presumably would be less familiar with the social implications and engineering difficulties of nuclear waste disposal than might social or natural science majors.

The findings demonstrate strong evidence of a diffusion effect and strong support for the second hypothesis. The subjects in E_2 who reported that they talked to a member of the treatment group after the initial treatment-interview (27% reported this) knew more about the topic on the subsequent test than did the E_2 subjects who said they did not talk to someone in the treatment-interview group (knowledge scores were 3.14 and 1.37, respectively). In other words, the survey-communication stimulated further interpersonal communication about the subject of the survey and information diffused in a "two-step flow" from interviewer to respondent to friend of respondent.

Just as interesting from a methodological perspective are subjects' self-reports of the nature and extent of their conversations about the survey. While 68 percent of the subjects in the initial treatment-interview group said they talked to someone on the floor about the survey after the treatment-interview, only 40 percent said they talked to someone on the floor about nuclear power. In this small, homogenous community in which surveys were "unusual events", the medium was actually the message.

Yet another interesting offshoot of these findings is that while a majority of treatment-interview (E_1) group members said that they talked to someone on the floor about the survey, only a small percentage of E_2 members said that they talked to someone in the treatment-interview group. Three possible explanations can account for this apparent discrepancy: (1) E_2 members forgot they talked to someone in the treatment group, (2) treatment-group members talked primarily among themselves about their shared experience, or (3)

they were more interested in the topic, more popular in general, or simply around the dorm more often than others. All three explanations are likely to have occured to some degree, although the experience of the interviewers suggests that the second actually did occur. When interviewers left each floor, students were commonly grouped in one room talking about the survey, and most of the people on the floor at the time were members of the treatment-interview group.

Conclusion

This study has examined cognitive effects of panel studies from a communications perspective, focusing on information gain and diffusion of information to others in the same social system. The findings show strong support for the presence of panel effect, in general, and cognitive effects, specifically. It is not entirely clear, however, whether these cognitive effects can be attributed to the survey interview alone or whether the survey interview prompted the subjects to seek information from the environment after the interview. In either case, the interview acts as the stimulus for information seeking, either in the follow-up questions or after the interview is over.

These findings have the greatest relevance for researchers using panel designs testing for changes in awareness or knowlege of an issue. Interviewing can and does sensitize respondents to the issue under question. And, this effect is not restricted to respondents alone, but can be diffused to others who have not been interviewed. Further, the findings of this study have implications in the design of interview schedules. Currently, two approaches are

used in attitude surveys. The first is to use "questions in a vacuum" in which respondents are asked a single question on a single issue and their responses recorded. The other approach is to supply more contextual material for the respondent in the belief that it will allow a respondent to fully understand the question he or she is about to answer (O'Neill, 1979). Although the latter approach is likely to ensure more valid responses, it will also likely have a greater cognitive effect on the respondent, who is now supplied with information with which he or she might previously have been unaware of.

In terms of diffusion effect, the findings raise some validity questions for survey researchers. To the extent that news of the survey diffuses through a social system, respondents interviewed late in the field work may have already heard about the survey and have had a chance to prepare answers or give more thought to their responses than would respondents who were interviewed earlier.

Finally, while the findings of this study cannot be generalized to every interview situation they demonstrate that at some level of proximity and homogeneity of respondents, these effects can occur. Further research will be needed to determine at what levels these effects are mitigated.

Notes

The authors are Doctoral Candidates in the School of Journalism and Mass Communication at the University of Minnesota. They would like to thank Professors Daniel B. Wackman and Phillip J. Tichenor for their assistance on this project.

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TABLE 1

SCORES ON A KNOWLEDGE TEST OF NUCLEAR WASTE DISPOSAL PLANS

	E_1		E_2	C
	time 1	time 2	—	—
knowledge scores	1.22	3.48	1.85	1.21
n=	(27)	(25)	(26)	(28)

$E_{1.2}$-C difference: $p < .05$

$E_{1.1}$-$E_{1.2}$ difference: $p < .05$

in group E_1, $time_1$ represents the treatment-interview